Task Completion Prediction Model - Performance Report

Introduction

This report summarizes the performance of a machine learning model developed to predict task completion likelihood based on user activity metrics. The dataset includes features such as app usage time, step count, sleep duration, and wellness indicators.

Model Performance

The model used a Random Forest Classifier and was trained on a dataset split into 70% training and 30% testing. The key performance metrics were as follows:

- Accuracy: 100%
- Precision, Recall, F1-score: Perfect scores due to dataset structure.

The model performed exceptionally well, likely due to clear patterns in the features. However, in real-world applications, accuracy may decrease when applied to more complex datasets.

Key Insights

1. Feature Importance: Factors such as sleep duration, stress levels, and screen time had a significant impact on task completion likelihood.
2. Perfect Accuracy Concern: The model's high accuracy suggests it may be overfitting, and further validation with a larger dataset is needed.
3. Potential Improvements: Including additional behavioral metrics and experimenting with other models such as XGBoost or Neural Networks could improve performance.

Future Work

- Expanding the dataset to include more user samples.
- Exploring deep learning models for better generalization.
- Testing the model on real-world user activity data to evaluate practical performance.

Conclusion

The model successfully demonstrated how machine learning can predict task completion likelihood based on user activity metrics. Future improvements should focus on increasing dataset diversity

and testing additional models for better generalization.